Space Weather Highlights
04 June - 10 June 2018

SWPC PRF 2232
11 June 2018

Solar activity was mostly at very low levels with an isolated C-class flare observed at 06/1100 UTC from Region 2712 (N15, L=176, class/area Csi/080 on 28 May) from just beyond the West limb. The solar disk was spotless from 06-10 Jun. No Earth-directed coronal mass ejections (CMEs) were observed during the reporting period.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit reached high levels throughout the period with a maximum flux of 19,491 pfu observed at 06/1705 UTC.

Geomagnetic field activity ranged from quiet to active levels over the period. Solar wind speed was in decline from a negative polarity coronal hole high speed stream (CH HSS) on 04-05 Jun with solar wind speeds declining from approximately 630 km/s to near 450 km/s while total field ranged from 2 nT to 9 nT. The geomagnetic field was at quiet levels on 04-05 Jun. By midday on 06 Jun, an enhancement in total field was observed reaching a maximum of 11 nT at 07/0635 UTC. The Bz component reached a maximum of -8 nT at 06/1820 UTC. The geomagnetic field responded with quiet to active levels on 06 Jun and quiet to unsettled levels on 07 Jun. By 08 Jun and through the rest of the period, solar wind speeds were at nominal levels with solar wind speeds at 400 km/s or less and total field at 5 nT or less. Quiet conditions were observed on 08-10 Jun.

Space Weather Outlook
11 June - 07 July 2018

Solar activity is expected to be at very low levels with a slight chance for isolated C-class flares from 11 Jun-01 Jul with the return of old Regions 2711 (N06, L=288) and 2712 (N15, L=176) to the visible disk.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to reach high levels on 11 Jun and again from 28 Jun-07 Jul due to CH HSS influence.

Geomagnetic field activity is expected to be at unsettled levels on 12-14 Jun and 19 Jun due to weak CH HSS effects. Unsettled to active levels are expected on 27-30 Jun with G1 (Minor) geomagnetic storm levels likely on 28-29 Jun due to recurrent CH HSS effects.

Daily Solar Data

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10^{-6} hemi.)	X-ray Background Flux		Flares						
						X-ray			Optical			
						C	M	X	S	1	2	3	4
04 June	71	11	10	A4.1	0	0	0	0	0	0	0	0	0
05 June	71	0	0	A4.2	0	0	0	0	0	0	0	0	0
06 June	71	0	0	A2.8	1	0	0	0	0	0	0	0	0
07 June	69	0	0	A0.0	0	0	0	0	0	0	0	0	0
08 June	68	0	0	A0.0	0	0	0	0	0	0	0	0	0
09 June	67	0	0	A0.0	0	0	0	0	0	0	0	0	0
10 June	70	0	0	A1.0	0	0	0	0	0	0	0	0	0

Daily Particle Data

Date	Proton Fluence (protons/cm^2 -day -sr)			Electron Fluence (electrons/cm^2 -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
04 June	1.6e+06	1.8e+04	3.7e+03		9.1e+08	
05 June	1.7e+06	1.9e+04	3.9e+03		6.9e+08	
06 June	1.8e+06	1.9e+04	3.9e+03		6.7e+08	
07 June	6.5e+05	1.9e+04	4.0e+03		8.4e+07	
08 June	7.5e+05	1.9e+04	4.1e+03		7.3e+07	
09 June	7.6e+05	1.9e+04	4.0e+03		7.8e+07	
10 June	7.7e+05	1.9e+04	3.9e+03		7.1e+07	

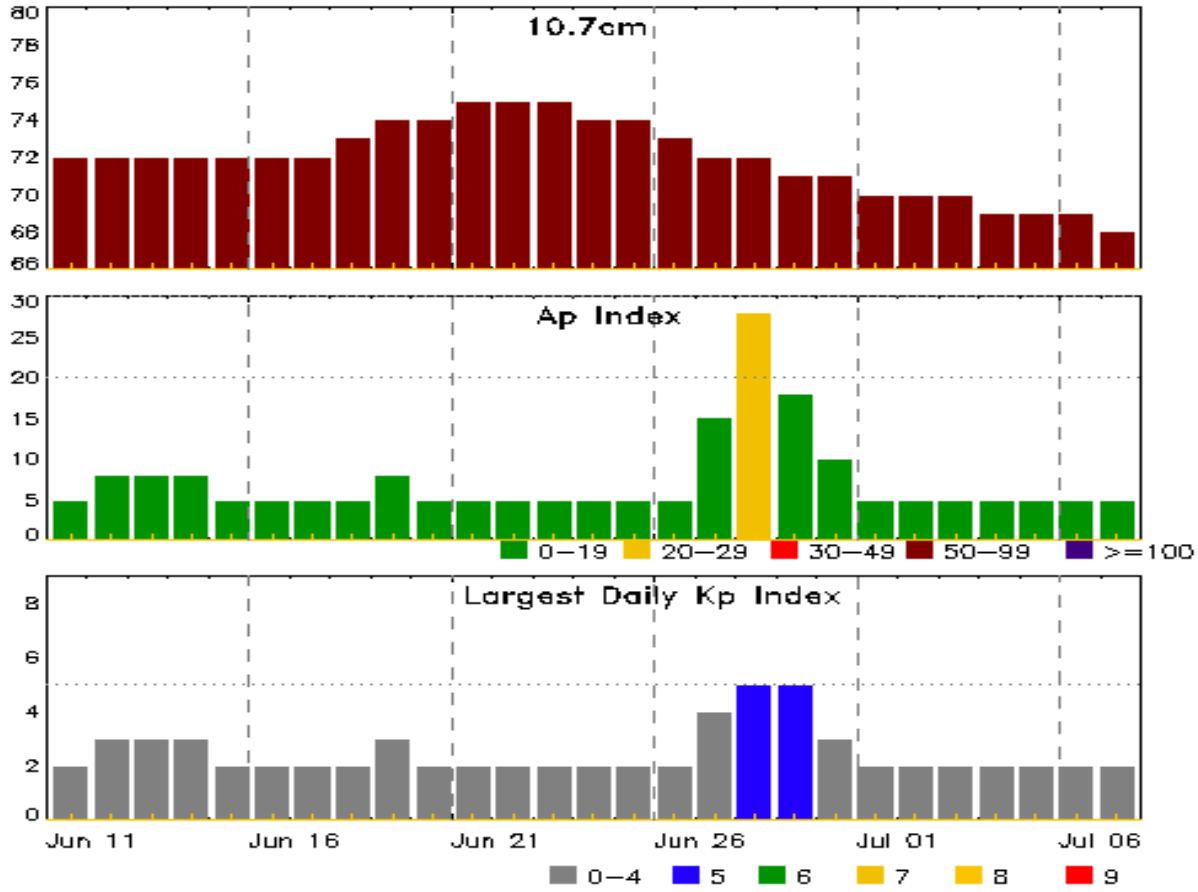
Daily Geomagnetic Data

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
04 June	5	1-2-1-1-2-1-2-1	4	2-2-1-2-1-1-1-0	5	1-2-2-1-1-1-2-1
05 June	6	2-2-1-2-2-2-2-1	7	2-2-1-3-3-1-1-1	6	2-2-2-2-2-2-2-1
06 June	9	1-2-0-2-2-3-4-2	5	1-1-0-0-2-2-3-1	7	1-1-0-1-1-2-4-2
07 June	6	2-2-1-1-2-2-1-2	3	1-2-1-1-1-1-0-0	6	3-2-1-1-1-1-1-2
08 June	5	1-3-1-2-2-1-0-0	6	2-2-0-3-3-0-0-0	4	1-2-1-2-2-0-0-0
09 June	5	1-1-1-2-2-1-2-1	3	0-1-1-3-0-1-1-0	4	1-1-1-2-1-1-1-1
10 June	4	1-2-1-1-2-1-2-0	0	0-1-0-0-0-0-0-0	4	1-2-1-0-1-1-1-1

Alerts and Warnings Issued

Date & Time of Issue UTC	Type of Alert or Warning	Date & Time of Event UTC
04 Jun 0859	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1610
05 Jun 0900	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1610
06 Jun 0859	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1610
06 Jun 1944	WARNING: Geomagnetic K = 4	06/1945 - 2359
06 Jun 2107	ALERT: Geomagnetic K = 4	06/2059
07 Jun 1433	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1610
08 Jun 1531	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1610
09 Jun 1405	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1610
10 Jun 1500	CONTINUED ALERT: Electron 2MeV Integral Flux >= 1000pfu	01/1610

Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
11 Jun	72	5	2	25 Jun	74	5	2
12	72	8	3	26	73	5	2
13	72	8	3	27	72	15	4
14	72	8	3	28	72	28	5
15	72	5	2	29	71	18	5
16	72	5	2	30	71	10	3
17	72	5	2	01 Jul	70	5	2
18	73	5	2	02	70	5	2
19	74	8	3	03	70	5	2
20	74	5	2	04	69	5	2
21	75	5	2	05	69	5	2
22	75	5	2	06	69	5	2
23	75	5	2	07	68	5	2
24	74	5	2				

Energetic Events

	Time			X-ray		Optical Information			Peak Radio Flux		Sweep Freq Intensity	
Date	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	245	2695	II	IV

No Events Observed

Flare List

	Time				Optical		
Date	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
06 Jun	1044	1100	1106	C1.0			2712
06 Jun	1139	1143	1146	B1.3			2712

Region Summary

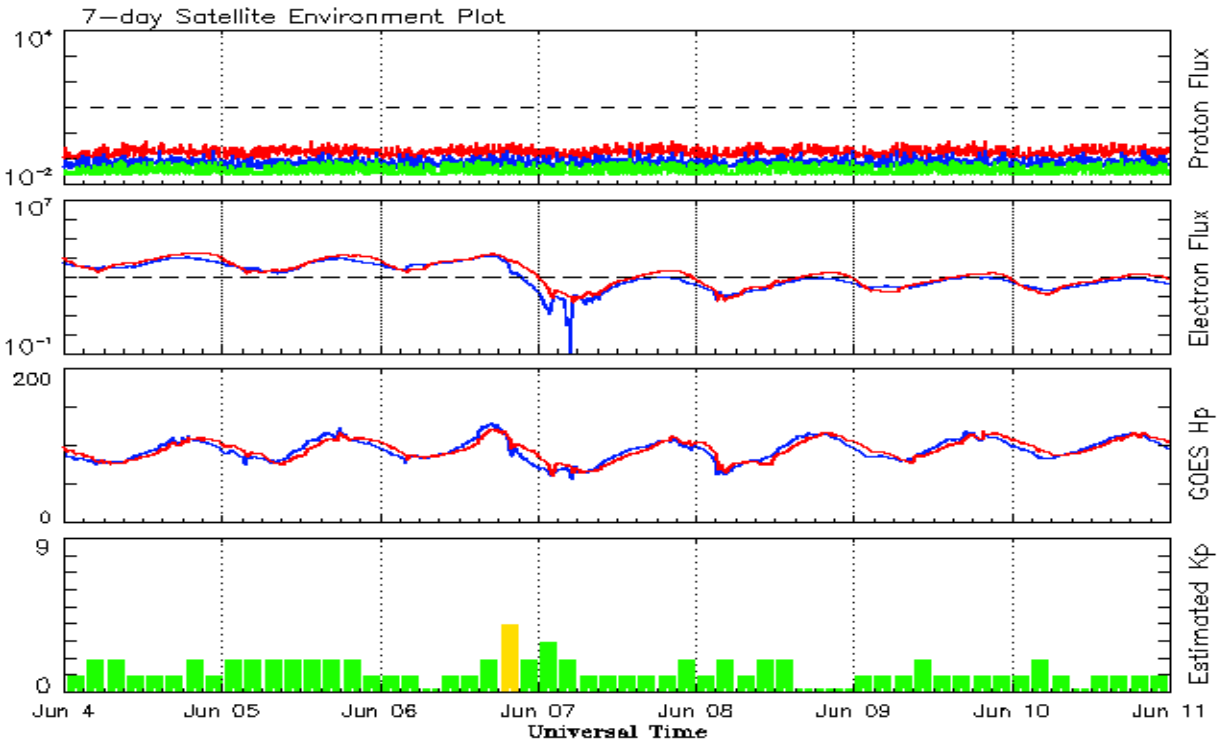
	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10^{-6} hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
		Region 2712													
23 May	N13E89	172	plage					1							
24 May	N13E75	172	80	6	Cso	2	B				1				
25 May	N14E56	178	40	9	Cao	7	B				2				
26 May	N15E43	178	40	8	Cao	3	B								
27 May	N15E28	179	40	9	Cro	5	B				1				
28 May	N15E18	176	80	7	Csi	10	B	1			7				
29 May	N16E05	176	70	8	Csi	12	B				2				
30 May	N16W09	177	30	8	Cro	8	B								
31 May	N16W23	177	50	8	Dro	11	BG				2				
01 Jun	N16W36	177	60	7	Dro	12	BG				1				
02 Jun	N15W48	176	30	9	Cro	10	B				1				
03 Jun	N14W63	178	10	6	Bxo	6	B				1				
04 Jun	N14W77	178	10	1	Axx	1	A								
05 Jun	N14W91	179	plage												
								2	0	0	18	0	0	0	0

Crossed West Limb.
Absolute heliographic longitude: 176

Recent Solar Indices (preliminary)
Observed monthly mean values

	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
Month	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
				2016					
June	19.3	12.3	0.65	39.0	24.9	81.9	90.4	9	11.4
July	36.8	19.4	0.53	36.5	23.1	85.9	87.7	10	11.2
August	50.4	30.1	0.60	34.2	21.6	85.0	85.5	10	11.2
September	37.4	26.8	0.72	32.1	19.9	87.8	83.7	16	11.3
October	30.0	20.0	0.67	31.1	18.9	86.1	82.5	16	11.6
November	22.4	12.8	0.57	29.4	17.9	78.7	81.1	10	11.6
December	17.6	11.1	0.64	28.1	17.1	75.1	80.0	10	11.4
				2017					
January	28.1	15.7	0.55	27.3	16.7	77.4	79.4	10	11.3
February	22.0	15.8	0.71	25.5	15.9	76.9	78.7	10	11.3
March	25.4	10.6	0.42	24.6	15.4	74.6	78.6	15	11.5
April	30.4	19.4	0.64	24.3	14.9	80.9	78.4	13	11.5
May	18.1	11.3	0.62	23.1	14.0	73.5	77.7	9	11.3
June	18.0	11.5	0.64	22.0	13.3	74.8	77.3	7	11.3
July	18.8	10.7	0.59	20.8	12.6	77.7	76.8	9	11.0
August	25.0	19.6	0.80	19.7	11.7	77.9	76.3	12	10.7
September	42.2	26.2	0.62	18.6	10.9	92.0	75.9	19	10.3
October	16.0	7.9	0.49	16.8	10.0	76.4	75.1	11	9.8
November	7.7	3.4	0.44	15.7	9.2	72.1	74.6	11	9.5
December	7.6	4.9	0.64			71.5		8	
				2018					
January	7.8	4.0	0.51			70.0		6	
February	16.0	6.4	0.40			72.0		7	
March	6.0	1.5	0.25			68.4		8	
April	7.0	5.3	0.76			70.0		7	
May	15.0	7.9	0.53			70.9		8	

Note: Values are final except for the most recent 6 months which are considered preliminary. Cycle 24 started in Dec 2008 with an RI=1.7.



Weekly Geosynchronous Satellite Environment Summary
Week Beginning 04 June 2018

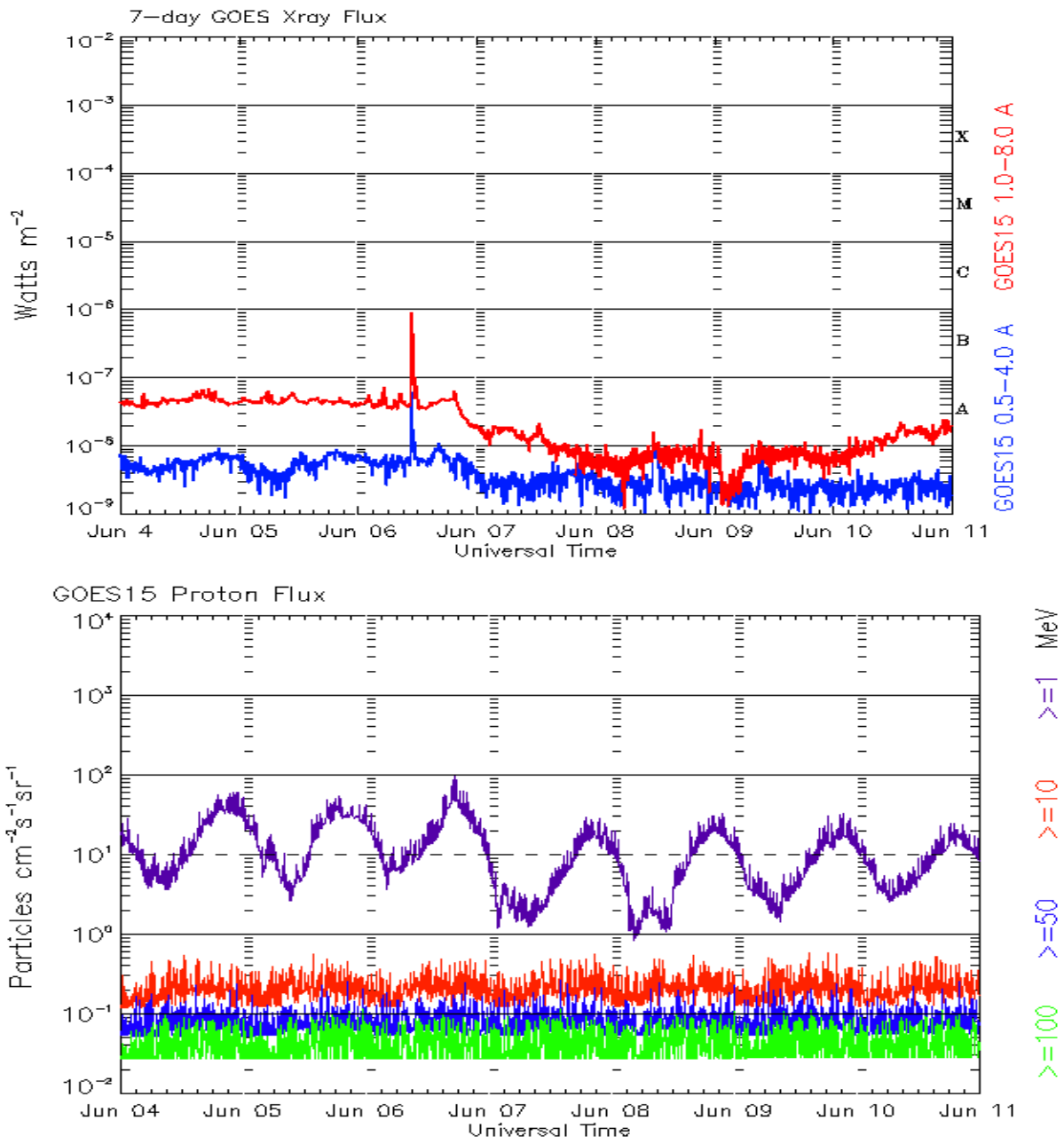
The proton flux plot contains the five-minute averaged integral proton flux (protons/cm^2-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm^2-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. H parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.



Weekly GOES Satellite X-ray and Proton Plots
Week Beginning 04 June 2018

The x-ray plots contains five-minute averages x-ray flux (Watt/m^2) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged intergral flux units (pfu = protons/cm^2 -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds: >1, >10, >30, and >100 MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.

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Notice: The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned. Comments and suggestions are welcome SWPC.Webmaster@noaa.gov

The Weekly has been published continuously since 1951 and is available online since 1997.

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